

**ENTERED**

February 16, 2018

David J. Bradley, Clerk

**IN THE UNITED STATES DISTRICT COURT  
FOR THE SOUTHERN DISTRICT OF TEXAS  
HOUSTON DIVISION**

MULTILIFT WELLBORE TECHNOLOGY,	§	
LIMITED <i>et al.</i> ,	§	
	§	
Plaintiffs,	§	
	§	
v.	§	CIVIL ACTION NO. H-17-2611
	§	
ESP COMPLETION TECHNOLOGIES,	§	
LLC <i>et al.</i> ,	§	
	§	
Defendants.	§	

**MEMORANDUM AND OPINION**

Sand and machines do not get along. Sand can slow, stop, or break machines, bringing work to a halt. Repairs or replacement can be time consuming and expensive. Hydrocarbon production is particularly vulnerable to sand's effects. The problem is acute in fracking, which injects sand and liquid into oil wells under high pressure to crack rock formations and allow petroleum and natural gas to flow more easily through the well to the surface. The fracking process increases the amount of solids mixed with the oil during production. When sand builds on top of the drilling pump, the predictable occurs. The pump stops, often needing repair or replacement, and the work is delayed. This patent-infringement case arises out of solving that problem.

Multilift's U.S. Patent No. 9,441,435 (the '435 Patent) claims an apparatus designed to prevent pump failure from sand accumulating on top of the pump. Multilift alleges that the defendants, ESP Completion Technologies and C&J Energy Services, infringed the '435 Patent. (Docket Entry No. 116-1).

The parties have asked the court to construe seven disputed terms and decide whether an

eighth term is a required element or a non-limiting statement of intended use. Multilift filed an opening claim-construction brief, the defendants filed a responsive brief, and Multilift filed a reply. (Docket Entry Nos. 109, 113, 117). The parties presented a tutorial, and the court held a lengthy *Markman* hearing at which counsel argued their competing constructions. (Docket Entry Nos. 123, 126).

Based on the parties' claim-construction briefing, counsels' arguments, the record, and the applicable law, the court construes the seven disputed terms and decides the issue involving the eighth term, as set out and explained below.

## **I. Background**

### **A. The Technology**

The problem that the '435 Patent addresses arises when a downhole pump stops. When the pump stops, so does the upward movement of the oil and solids—primarily sand—through the production pipe from under the ground to the surface. The solids are dense and settle on top of the pump.<sup>1</sup> When enough solids accumulate, the pump often becomes plugged and stops. Turning the pump back on strains the motor as it tries to break through the settled solids and push the fluid up the pipe. The motor can work so hard that the heat it generates melts or damages its internal components. Repairing or replacing the pump and motor is expensive. A typical pump costs between \$80,000 to \$100,000. Losing a week or more of production while a pump is removed, repaired or replaced, and reinstalled can cost from \$250,000 to \$500,000. Pump failures from accumulated solids generally occur four or five times a year, per well.

The '435 Patent is designed to avoid failures and damage caused by solids when the pump

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<sup>1</sup> Whether the sand is “flowing” downward is contested. *See infra* IV.A.

stops and is reactivated. The '435 Patent describes an apparatus that sits on top of a pump. The apparatus is integrated into the pipe, so that hydrocarbons can travel through the apparatus. The invention keeps solids from accumulating on top of the pump by allowing both fluids and solids to travel up and out of the apparatus, but not allowing solids to travel out of the lower opening to the top of the pump. The apparatus does this by using an inner and an outer tube. A device at the top of the inner tube allows fluid and solids to travel up through the apparatus and into the rest of the pipe, but separates most of the solids from the fluids and prevents those solids from entering the inner tube when moving downwards. The device does this by diverting the solids moving downward into the outer tube. The solids accumulate at the bottom of the outer tube, which is lower than the top of the inner tube. The solids are separated from the hydrocarbons and blocked from settling on top of the pump. When the pump is restarted, there is no problematic accumulation of solids on the top. The pump is able to push the separated fluid hydrocarbons and remaining solids up through the apparatus. Fluids and some solids travel up the inner tube, but the concentration of solids is much less than would be present without the diversion into the outer tube. The device on top of the inner tube allows the pump to continue operating, moving the hydrocarbons through the apparatus and into the pipe.

One problem remains. The solids in the outer tube accumulate and must be removed. If not, the fix is a one-or-two time event. To keep the pump working over time, the '435 Patent claims a design that cleans the apparatus of the solids that have accumulated in the outer tube. The apparatus has ports, or slits, placed at regular intervals throughout the inner tube. These ports are designed so that solids entrained in the fluid, moving downward by gravity but without downward force (as when the pump is shut off), cannot enter the inner tube. But when the pump is activated, upward-

moving fluids and solids are sent through the ports. The pressure of the upward-moving fluids and solids gradually breaks up the accumulation of solids in the outer tube, working down from the highest point of the accumulated solids, where their cumulative weight is least. Once the outer tube is fully cleared, the apparatus has returned to the original, pre-pump-shutdown stage. It is ready for continued use.

## **B. The Infringement Allegations**

Multilift asserts one count of patent infringement under 35 U.S.C. § 271, based on the following allegations:

- the defendants infringed the ‘435 Patent by making, using, and selling a product called the Sand Eliminator since at least early 2016 and through at least October 3, 2017;
- the Sand Eliminator embodies the patented invention;
- the Sand Eliminator is substantially similar to Multilift’s product, the SandGuard, “serv[ing] the same purpose,” “operat[ing] in the same manner,” and “function[ing] identically” to the SandGuard; and
- the defendants continued to make, use, and sell the Sand Eliminator after Multilift sent them a cease-and-desist letter on October 20, 2016.

(Docket Entry No. 116 at 3–4).

Multilift alleges that the defendants “have infringed and continue to infringe as of October 3, 2017, directly and indirectly, through contributory and/or induced infringement, by using, selling, and/or offering to sell in the United States, at least the Sand Eliminator, which comes within and/or is operated within the scope of one or more claims of the Patent,” and that the infringement was “intentional, deliberate, and willful.” *Id.* at 5. Multilift alleges that it has suffered, and will continue to suffer, irreparable harm due to the defendants’ infringing conduct. *Id.* at 6. It seeks an injunction prohibiting future infringement of the ‘435 Patent and activities inducing or contributing to

infringement, a list of all entities who were sold or offered any product that infringes the Patent, and monetary damages. *Id.* at 6–7.

### C. The Disputed Terms

The parties dispute eight terms in Claim 1 or Claim 18. Unlike the first seven terms, the eighth is not disputed because of its meaning but because the parties disagree on whether the term is a required element or a non-limiting statement of intended use.

The meaning of the following seven terms are disputed:

1. “flow” (Claims 1 and 18);
2. “production tubular” (Claims 1 and 18);
3. “a [first/second] flow path between the upper opening and the lower opening in the body” (Claim 1);
4. “flow diverter arranged to direct downward flow through the body towards the second flow path and away from the first flow path” (Claim 1);
5. “a device in the second flow path for filtering or collecting solid particles from the second flow path” (Claim 1);
6. “directing downward flow of fluid and/or entrained solids to a second flow path in the body” (Claim 18); and
7. “filtering or collecting solid particles in the second flow path” (Claim 18).

The term that is either a required element or a non-limiting statement of intended use is:

8. “wherein fluid flowing in the first flow path in an upward directions causes fluid flow in the second flow path which carries filtered or collected solid particles away from the device” (Claim 1).

The disputed terms in Claims 1 and 18 are set out in bold:

**Claim 1.** A downhole apparatus comprising:

a body configured to be coupled to a **production tubular** and comprising an upper opening and a lower opening;

a **first flow path between the upper opening and the lower opening in the body;**

a **second flow path between the upper opening and the lower opening in the body;**

a **flow diverter arranged to direct downward flow through the body towards the second flow path and away from the first flow path; and**

a **device in the second flow path for filtering or collecting solid particles from the second flow path,**

wherein the first flow path and the second flow path are in fluid communication with one another;

and wherein fluid flowing in the first flow path in an upward direction causes fluid flow in the second flow path which carries filtered or collected solid particles away from the device.

...

**Claim 18.** A method of operating a hydrocarbon well, the method comprising:

providing a **production tubular**, a downhole pump in the **production tubular**, and a body coupled to a **production tubular** above the downhole pump and comprising an upper opening and a lower opening;

in a production phase, operating the downhole pump to cause fluid to flow in a first flow path upward through the body;

ceasing operation of the pump;

**directing downward flow of fluid and/or entrained solids to a second flow path in the body;**

**filtering or collecting solid particles in the second flow path; and**

carrying filtered or collected solid particles out of the upper opening of the body by operating the downhole pump.

Each of these disputed terms is construed based on the record and the governing law.

## **II. The Record**

The record the parties rely on for claim-construction includes: the ‘435 Patent (Docket Entry No. 116-1); excerpts from the ‘435 Patent prosecution and material documenting amendments to the Patent (Docket Entry Nos. 109-14, 113-5, 113-6); other patents, domestic and international, and patent applications (Docket Entry Nos. 109-10–109-13, 113-9 at 20, 113-9 at 26, 113-9 at 45); an excerpt from a July 24, 2017 motions hearing in the Eastern District of Texas, in which the parties argued motions for a preliminary injunction, to dismiss for improper venue, and to transfer venue (Docket Entry Nos. 109-2, 113-4); dictionaries (Docket Entry Nos. 109-5–109-8, 113-10, 113-11); and expert testimony (Docket Entry Nos. 109-3, 109-4, 113-1, 113-2, 113-7, 113-9, 117-1).

Multilift’s expert is Mr. John Bearden, a retired registered professional engineer with a Bachelor of Science and a Master of Science in mechanical engineering from Texas A&M University. (Docket Entry No. 50-8 at 3). He has more than 40 years of experience in the engineering design, development, and application of artificial-lift electric submersible pump systems. *Id.* Mr. Bearden worked at Borg-Warner Ingersoll Research Center; Centrilift (Byron-Jackson Pump), as a project engineer; Centrilift-Hughes, as a mechanical engineer; and Baker Hughes, as director of research and development systems engineering. *Id.* at 18. He has multiple technical publications and patents. *Id.* at 18–19.

The defendants’ expert is Dr. Gary Wooley, a registered professional engineer with a Bachelor of Science in mechanical engineering, a Master of Science in engineering mechanics, and a Ph.D. in engineering science, with minors in applied mathematics and mechanical engineering, from Louisiana State University. (Docket Entry No. 113-8 at 2). He has more than 50 years of industry experience, including at Humble Oil (Exxon), as an offshore field engineer; Louisiana State

University, as an instructor; Atlantic Richfield Co., as a senior research engineer; and as vice-president of Enertech Engineering and president of Wooley & Associates, Inc. *Id.* He has numerous professional publications. *Id.*

Both experts presented declarations and lengthy curriculum vitae, and gave depositions.

### **III. The Legal Standard**

The “claims of a patent define the invention to which the patentee is entitled the right to exclude.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (quoting *Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1115 (Fed. Cir. 2004)). “[T]he construction of a patent, including terms of art within its claim, is exclusively within the province of the court.” *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 372 (1996). Claim terms are “generally given their ordinary and customary meaning,” defined as “the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention.” *Phillips*, 415 F.3d at 1312–13 (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)). That is a person who will “read the words used in the patent documents with an understanding of their meaning in the field, and [has] knowledge of any special meaning and usage in the field.” *Id.* (quoting *Multiform Desiccants, Inc. v. Medzam, Ltd.*, 133 F.3d 1473, 1477 (Fed. Cir. 1998)); *see also Medrad, Inc. v. MRI Devices Corp.*, 401 F.3d 1313, 1319 (Fed. Cir. 2005) (cautioning courts not to interpret claim terms “in a vacuum” (quotation omitted)).

Claim construction begins with the claim language. *Aptalis Pharmatech, Inc. v. Apotex Inc.*, 2018 WL 286123, at \*3 (Fed. Cir. Jan. 4, 2018). The court looks first “to the words of the claims themselves, both asserted and nonasserted, to define the scope of the patented invention,” *Vitronics*, 90 F.3d at 1582, and construes the claim terms in the context of the surrounding claim language.



*ACTV, Inc. v. Walt Disney Co.*, 346 F.3d 1082, 1088 (Fed. Cir. 2003) (“[T]he context of the surrounding words of the claim also must be considered in determining the ordinary and customary meaning of those terms.”); *accord Lexion Medical, LLC v. Northgate Techs., Inc.*, 641 F.3d 1352, 1356 (Fed. Cir. 2011). When the words in the context of the surrounding claim language make the ordinary meaning readily apparent, claim construction “involves little more than the application of the widely accepted meaning of commonly understood words.” *Phillips*, 415 F.3d at 1314.

Patent-ese is a notoriously clumsy and awkward form of English, which can make construction more challenging. If the “ordinary and customary” meaning is unclear, the court moves from the words in the claims, viewed in context of the patent, to “the intrinsic evidence of record, i.e., the patent itself, including the claims, the specification and, if in evidence, the prosecution history.” *Vitronics*, 90 F.3d at 1582. Courts review the “specification to determine whether the inventor has used any terms in a manner inconsistent with their ordinary meaning.” *Vitronics*, 90 F.3d at 1582. The Federal Circuit has repeatedly stated that “claims ‘must be read in view of the specification, of which they are a part.’” *Phillips*, 415 F.3d at 1315 (quoting *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed. Cir. 1995), *aff’d*, 517 U.S. 370 (1996)). The specification, a “concordance for the claims,” *id.* (quoting *Autogiro Co. of Am. v. United States*, 384 F.2d 391, 397–98 (Ct. Cl. 1967)), is the “best source for understanding a technical term,” *id.* (quoting *Multiform Desiccants*, 133 F.3d at 1478).<sup>2</sup> “[T]he specification may reveal an intentional disclaimer, or disavowal, of claim scope by the inventor.” *Id.* (citing *Life Sys., Inc. v. Advanced Cardiovascular*

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<sup>2</sup> See also *Metabolite Labs., Inc. v. Lab. Corp. of Am. Holdings*, 370 F.3d 1354, 1360 (Fed. Cir. 2004) (“In most cases, the best source for discerning the proper context of claim terms is the patent specification wherein the patent applicant describes the invention.”). When the specification “reveal[s] a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess . . . the inventor’s lexicography governs.” *Phillips*, 415 F.3d at 1316 (citing *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002)).

*Sys., Inc.*, 242 F.3d 1337, 1343–44 (Fed. Cir. 2001)); *see also Thorner v. Sony Computer Entm’t Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012) (claim construction may deviate from the ordinary and customary meaning of a disputed term only if (1) a patentee sets out a definition and acts as his own lexicographer, or (2) the patentee disavows the full scope of a claim term, either in the specification or during prosecution).

“The construction that stays true to the claim language and most naturally aligns with the patent’s description of the invention will be, in the end, the correct construction.” *Phillips*, 415 F.3d at 1316 (quoting *Renishaw PLC v. Marposs Società per Azioni*, 158 F.3d, 1243, 1250 (Fed. Cir. 1998)). “There is a fine line between construing the claims in light of the specification and improperly importing a limitation from the specification into the claims.” *Retractable Techs., Inc. v. Becton, Dickinson & Co.*, 653 F.3d 1296, 1305 (Fed. Cir. 2011). Courts must “capture the scope of the actual invention, rather than strictly limit the scope of claims to disclosed embodiments or allow the claim language to become divorced from what the specification conveys is the invention.” *Id.*

“[A] court ‘should also consider the patent’s prosecution history, if it is in evidence.’” *Phillips*, 415 F.3d at 1317 (quoting *Markman*, 52 F.3d at 980); *see also Typhoon Touch Techs., Inc. v. Dell, Inc.*, 659 F.3d 1376, 1381 (Fed. Cir. 2011) (“[T]he specification is the primary source for determining what was invented and what is covered by the claims, elucidated if needed by the prosecution history.”). The prosecution history “can often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be.” *Phillips*, 415 F.3d at 1317 (citing *Vitronics*, 90 F.3d at 1582–83). The prosecution history

includes “all express representations made by or on behalf of the applicant to the examiner to induce a patent grant, or . . . to reissue a patent . . . includ[ing] amendments to the claims and arguments made to convince the examiner that the claimed invention meets the statutory requirements of novelty, utility, and nonobviousness.” *Standard Oil Co. v. Am. Cyanamid Co.*, 774 F.2d 448, 452 (Fed. Cir. 1985); *see also Sanofi-Aventis Deutschland GmbH v. Genentech, Inc.*, 473 F. App’x 885, 888 (Fed. Cir. 2012) (“We have held that an otherwise broadly defined term can be narrowed during prosecution through arguments made to distinguish prior art.”) (citing *Phillips*, 415 F.3d at 1317 (“The prosecution history . . . consists of the complete record of the proceedings before the PTO and includes the prior art cited during the examination of the patent.”))).

“The doctrine of prosecution disclaimer is well established in Supreme Court precedent, precluding patentees from recapturing through claim interpretation specific meanings disclaimed during prosecution.” *Omega Eng’g, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1323 (Fed. Cir. 2003); *see also SanDisk Corp. v. Memorex Prods., Inc.*, 415 F.3d 1278, 1286 (Fed. Cir. 2005). The doctrine applies even if the disclaimers were not necessary to make the invention patentable. *See Uship Intellectual Props., LLC v. United States*, 714 F.3d 1311, 1315 (Fed. Cir. 2013) (“We find no support for [the] proposition that prosecution disclaimer applies only when applicants attempt to overcome a claim rejection. Our cases broadly state that an applicant’s statements to the PTO characterizing its invention may give rise to a prosecution disclaimer.”); *cf. Southwall Techs., Inc. v. Cardinal IG Co.*, 54 F.3d 1570, 1583 (Fed. Cir. 1995) (“Estoppel extends beyond the basis of patentability. . . . Clear assertions made during prosecution in support of patentability, whether or not actually required to secure allowance of the claim, may also create an estoppel.”) (citing *Tex.*

*Instruments, Inc. v. U.S. Int’l Trade Comm’n*, 988 F.2d 1165 (Fed. Cir. 1993)).<sup>3</sup> Prosecution disclaimer does not apply “where the alleged disavowal of claim scope is ambiguous.” *Omega Eng’g*, 334 F.3d at 1324; *see also id.* at 1325 (“[W]e have required the alleged disavowing statements to be both so clear as to show reasonable clarity and deliberateness and so unmistakable as to be unambiguous evidence of disclaimer.”) (citations omitted). Only when “the patentee has unequivocally disavowed a certain meaning to obtain his patent [does] the doctrine of prosecution disclaimer attach[ ] and narrow[ ] the ordinary meaning of the claim congruent with the scope of the surrender.” *Id.* at 1324.

Courts may also “rely on extrinsic evidence, which ‘consists of all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises.’” *Phillips*, 415 F.3d at 1317 (quoting *Markman*, 52 F.3d at 980). Although extrinsic evidence “‘can shed useful light on the relevant art,’ it is ‘less significant than the intrinsic record in determining the legally operative meaning of claim language.’” *Zircon Corp. v. Stanley Black & Decker, Inc.*, 452 F. App’x 966, 972–73 (Fed. Cir. 2011) (quoting *Phillips*, 415 F.3d at 1317).

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<sup>3</sup> “There is a clear line of distinction between using the contents of the prosecution history to reach an understanding about disputed claim language and the doctrine of prosecution history estoppel which ‘estops’ or limits later expansion of the protection accorded by the claim to the patent owner under the doctrine of equivalents when the claims have been purposefully amended or distinguished over relevant prior art to give up scope. . . . [T]he two uses of the prosecution history must not be confused.” *Biodex Corp. v. Loredan Biomedical, Inc.*, 946 F.2d 850, 862 (Fed. Cir. 1991) (citations and internal quotation marks omitted); *see also Ballard Med. Prods. v. Allegiance Healthcare Corp.*, 268 F.3d 1352, 1358–59 (Fed. Cir. 2001) (distinguishing the two); *Spectrum Int’l Corp. v. Sterilite Corp.*, 164 F.3d 1372, 1378 n.2 (Fed. Cir. 1998) (same). “Just as prosecution history estoppel may act to estop an equivalence argument under the doctrine of equivalents, positions taken before the PTO may bar an inconsistent position on claim construction.” *Ballard Med. Prods.*, 268 F.3d at 1359 (quoting *Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1457 (Fed. Cir. 1998)) (alteration omitted). When the accused infringer argues that the prosecution history results in a narrowing of a claim’s scope, there is no difference, and the Federal Circuit has refused to reverse based on references to estoppel. *See id.* at 1359 (“Because the substance of the district court’s analysis was sound, we disregard the fact that the court used the term ‘prosecution history estoppel’ in an unconventional manner.”); *Biodex Corp.*, 946 F.2d at 862–63 (observing that “Biodex is technically correct in asserting that the doctrine of prosecution history estoppel is ‘irrelevant’ to determination of literal claim scope” but upholding the district court because prosecution history is relevant to claim interpretation) (citation omitted).

Extrinsic evidence is “in general . . . less reliable than the patent and its prosecution history” because it is “not part of the patent” and was not created in patent prosecution: “extrinsic publications may not be written by or for skilled artisans”; and expert reports and testimony created later, for litigation, may “suffer from bias not present in intrinsic evidence.” *Phillips*, 415 F.3d at 1318. A court must use “sound discretion” in admitting and using extrinsic evidence. *Id.* at 1319; *see also Seattle Box Co. v. Indus. Crating & Packing, Inc.*, 731 F.2d 818, 826 (Fed. Cir. 1984) (“A trial judge has sole discretion to decide whether or not [s]he needs, or even just desires, an expert’s assistance to understand a patent. We will not disturb that discretionary decision except in the clearest case.”).

“[E]xtrinsic evidence may be useful to the court, but it is unlikely to result in a reliable interpretation of patent claim scope unless considered in the context of the intrinsic evidence.” *Phillips*, 415 F.3d at 1319. Although a court may consider extrinsic evidence, it must not relegate the intrinsic evidence to a mere “check on the dictionary meaning of a claim term.” *Id.* at 1320–21 (noting that relying on dictionaries “too often” causes “the adoption of a dictionary definition entirely divorced from the context of the written description”). “The sequence of steps used by the judge in consulting various sources is not important; what matters is for the court to attach the appropriate weight to be assigned to those sources in light of the statutes and policies that inform patent law.” *Id.* at 1324 (citing *Vitronics*, 90 F.3d at 1582).

These claim-construction rules must be applied to the record in this case, including the tutorial counsel jointly provided the court, the arguments counsel presented during the day-long *Markman* hearing, the expert reports, and the documents admitted into evidence.

#### **IV. The Claim-Construction Analysis**

**A. Construing “flow”**

**i. The Parties’ Contentions**

Multilift argues that “flow” does not need construction, because its ordinary meaning “includes sand falling by gravity through a stationary column of fluid.” (Docket Entry No. 109 at 10). The defendants construe “flow” as limited to the downward movement of a “current or stream of fluid.” If sand entrained in a column of fluid continues to move downward after the fluid is no longer moving, the sand does not “flow,” according to the defendants, because it moves by gravity. Instead, it “falls.”

Multilift quotes the claims to support its argument that sand can “flow” when it is entrained in fluid and moves downward, whether the fluid is moving or not. Claim 1 refers to both “flow” and “fluid flow.” *Compare* Column 11, line 1 (“a flow diverter arranged to direct downward flow”), *with* Column 11, lines 8–10 (“fluid flowing in the first flow path in an upward direction causes fluid flow in the second flow path”). Multilift argues that under the claim-differentiation doctrine, “flow” is broader than “fluid flow” and encompasses solids and fluid. *Phillips*, 415 F.3d at 1315 (“[T]he presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim.”). Claim 18 makes this differentiation clear in referring to the “downward flow of fluid and/or entrained solids.” Column 12, line 29. Multilift argues that ignoring this distinction violates the “well-established rule that claims are interpreted with an eye toward giving effect to all terms in the claims.” *Digital-Vending Servs. Int’l, LLC v. Univ. of Phoenix, Inc.*, 672 F.3d 1270, 1275 (Fed. Cir. 2012).

Multilift also points to the specification to support its argument. The specification refers to the “flow” of solids, stating: “[T]he downhole apparatus also operates when there is no downward

fluid flow: solids entrained in the fluid column may flow downward through a stationary fluid to the second flow path and be collected at the filter device of the apparatus.” Column 2, lines 29–33. Other provisions do the same. *See* Column 6, lines 67–Column 7, line 1 (“Solid particles flowing in the fluid are diverted away . . . .”); Column 9, lines 28–30 (“Fluids and/or entrained solids and sand flow downwards in the apparatus . . . .”).

Lastly, Multilift notes that the defendants construe another term using “flow” to refer to the downward movement of solids entrained in fluid, without excluding solids moving in fluid that has become stationary. The defendants’ proposed construction for the claim term “directing downward flow of fluid and/or entrained solids to a second flow path in the body,” Column 12, lines 29–30, states: “closing a valve to cause fluid *and entrained solids flowing* in a downward direction to *flow* away from a first flow path and into a second flow path.” (Docket Entry No. 113 at 23) (emphasis added). There is no exception for entrained solids moving downward in a stationary column of fluid.

The defendants start with extrinsic evidence in responding to Multilift. Their technical expert, Dr. Gary Wooley, stated that “[a] person of ordinary skill in the art would not understand the word ‘flow’ to refer to solid particles moving by gravity within a static column of fluid. The movement of solid particles in that situation would be referred to as ‘falling’ or ‘settling.’” (Docket Entry No. 113-7, ¶4). The defendants also cite technical dictionaries, including *A Dictionary for the Oil and Gas Industry* (defining “flow” as “a current or stream of fluid”) and the *IADC Lexicon* (defining “flow” as “[v]olume or fluid moving in a given direction per unit of time”). (Docket Entry No. 113-10 at 6); (Docket Entry No. 113-11 at 2).

The defendants argue that the patentee intended to describe his invention consistent with the understanding that fluid “flows” but solid particles “fall,” turning to specification language stating that “[o]n pump shutdown, flow ceases very quickly as the fluid levels in the production bore and the annulus [equalize]. Gravity acting on the sand particles present in the column of fluid above the pump . . . causes the sand and any other solids to *fall back* towards the pump.” Column 1, lines 48–53 (emphasis added). Other parts of the ‘435 Patent also describe “flowing” fluid and “falling” solid particles. (Docket Entry No. 113-7, ¶9). For example, Claim 14 states: “The apparatus as claimed in claim 1, wherein the flow diverter is arranged to direct downward flow of fluid through the body, *and solid particles falling by gravity in the fluid*, towards the second flow path and away from the first flow path.” Column 11, line 54–Column 12, line 3 (emphasis added). In response to Multilift’s reliance on claim differentiation, the defendants cite case law. “That a patentee chose several words in drafting a particular limitation in one claim, but fewer (though similar) words in drafting the corresponding limitation in another, does not mandate different interpretation of the two limitations . . . .” *Tate Access Floors, Inc. v. Maxcess Techs., Inc.*, 222 F.3d 958, 968 (Fed. Cir. 2000) (construing “border” and “integral contrasting border” to have same meaning).

The defendants also respond to Multilift’s point that the defendants used the word “flow” inconsistently in construing the claim term “directing downward flow of fluid and/or entrained solids to a second flow path in the body.” Column 12, lines 29–30. The defendants’ proposed construction of that term states: “closing a valve to cause fluid and entrained solids flowing in a downward direction to flow away from a first flow path and into a second flow path.” Dr. Wooley argues that the term “flow” here refers to solid particles that are drawn in and transported “by the flow of fluid.” (Docket Entry No. 113-7, ¶¶10–11). The “flow” of entrained solids in that context depends on, and



is caused by, fluid flow; “flow,” as used in Claim 18, does not refer to the continued independent downward movement of the solids when the fluids stop. The defendants argue that the specification supports this reading. *See, e.g.*, Column 7, lines 18–20 (“The sands and solids *are entrained in the flow* upwards through the apparatus . . . .” (emphasis added)).

The defendants also cite the specification language stating that “the downhole apparatus also operates when there is no downward fluid flow; solids entrained in the fluid column may flow downward through a stationary fluid to the second flow path. . . .” Column 2, lines 29–33. The defendants argue that, in the context of the entire written description, this language is “simply a product of careless drafting, rather than an effort to expressly redefine a claim term,” and that the repeated use of “flowing” fluids and “falling” solids makes this provision inaccurate. *See Digital Biometrics, Inc. v. Identix, Inc.*, 149 F.3d 1335, 1345 (Fed. Cir. 1998) (“It is clear from the entirety of the written description that this is not an accurate statement. . . . This isolated passage therefore does not alter our construction, which is based on the entire written description.”). Another part of the specification states: “Solid particles flowing in the fluid are diverted away from the first flow region . . . .” Column 6, lines 67–Column 7, line 1. The defendants note that the preceding sentence states: “When the fluid column is at rest and no longer flows through the tool, *solid particles continue to fall* through the fluid by gravity acting on the solids.” Column 6, lines 65–67 (emphasis added).

## **ii. Analysis**

Claim construction begins with the claim language, *Aptalis Pharmatech, Inc. v. Apotex Inc.*, 2018 WL 286123, at \*3 (Fed. Cir. Jan. 4, 2018), and that language supports Multilift’s proposed construction. Claim 18 states, in part: “directing downward flow of fluid and/or entrained solids to

a second flow path in the body.” Column 12, lines 29–30. The defendants argue that the flow of “entrained solids” refers to solids that are flowing only because the fluid in which they are entrained is also flowing. (Docket Entry No. 123 at 34 (“Entrain necessarily means that the fluid is moving . . . .”). But the defendants’ reading ignores the “and/or” conjunction in Claim 18. But if entrained solids could flow only if there was fluid flow, then “and” would be sufficient: “directing downward flow of fluid and entrained solids.” Adding the word “or” matters. “Flow” can refer to *either* the downward movement of fluid *or* of solids entrained in the fluid, even if the fluid has become stationary. “Or” describes the “flow of . . . entrained solids” without fluid flow. “Entrained solids” does not mean only entrained solids in moving fluid, but can include entrained solids that may continue to move downward after the fluid has stopped moving.

The defendants’ reliance on Claim 14—“. . . and solid particles falling by gravity in the fluid . . . .”—does not help their position. The defendants’ argument assumes that “flowing” and “falling” cannot have overlapping meanings. Their argument does not account for the patentee’s intent, evidenced in the claim drafting, to include what they refer to as “fall” or “falling” within the definition of “flow” or “flowing.”

Even if the ordinary and customary meaning of “flow” does not include solids that “fall” by gravity when the entraining fluid has stopped, a term’s meaning may deviate from the ordinary and customary if the patentee sets out a definition and acts as his own lexicographer. *Thorner*, 669 F.3d at 1365. The ‘435 Patent “clearly redefine[d]” the definition of “flow” to include solids entrained in fluids moving downward with downward-moving fluids as well as entrained solids that continue to move downward even after the fluids have stopped moving. The definition the patentee uses is shown by the repeated references to the flowing of solids to include what the defendants refer to as

“falling” solids. *See In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994). To the extent the meaning of “flow” is broadened beyond the ordinary and customary by including entrained solids that continue to move downward after the surrounding fluid stops, the patentee defined “flow” to include these solids.

The specification language is consistent. The specification states: “[T]he downhole apparatus also operates when there is no downward fluid flow: solids entrained in the fluid column may flow downward through a stationary fluid to the second flow path and be collected at the filter device of the apparatus.” Column 2, lines 29–33. The specification does the opposite of limiting the flow of entrained solids to situations in which entraining fluid is also flowing. The specification repeatedly refers to the flow of solid particles, including after the fluids are stationary. *See* Column 6, line 67–Column 7, line 1 (“Solid particles flowing in the fluid are diverted away . . . .”); Column 9, lines 28–30 (“Fluids and/or entrained solids and sand flow downwards in the apparatus . . . .”).

Though the ‘435 Patent also uses the words “fall” and “falling” to refer to the downward movement of solids in stationary fluid, the contemporaneous use of the word “flow” to describe the same movement shows that the Patent defined the word “flow” to mean entrained solids moving with fluids and solids moving by gravity after the fluids have stopped, which the defendants assert can only mean “fall.” The defendants’ expert, Dr. Wooley, testified that “[t]he words are clear. The column is not flowing. That’s what the inventor says. The column of fluid is not flowing, but then he uses the word flow for the movement of particles as they fall by gravity through the column.” (Docket Entry No. 117-1 at 4). Dr. Wooley’s testimony supports finding that the ‘435 Patent’s use of “flow” in the specification has “sufficient clarity to put one reasonably skilled in the art on notice that the inventor intended to redefine the claim term.” *Merck & Co., Inc. v. Teva Pharms USA, Inc.*,

395 F.3d 1364, 1370 (Fed. Cir. 2005).

The words of the ‘435 Patent and the intrinsic evidence show that “flow” means both the movement of fluids and entrained solids and of entrained solids continuing to move after the entraining fluid has become stationary.

**B. Construing “production tubular”**

**i. The Parties’ Contentions**

Multilift argues that this term does not need construction beyond its plain and ordinary meaning. The defendants construe the term to mean “tubular used in hydrocarbon production.” Multilift opposes this. Multilift argues that the term in Claim 1 should not be limited to “hydrocarbon” production, because the specification uses both “hydrocarbon production” and “production,” and because Claim 2 refers specifically to “production fluid from a hydrocarbon well,” implying that the ‘435 Patent has a broader application. Multilift also argues that the defendants’ construction would improperly include drilling-phase tubular, such as drill strings.

**ii. Analysis**

Construing this disputed term requires determining whether “production” is limited to hydrocarbon production, and whether it is further limited to phases other than production, such as the drilling phase.

Multilift’s reliance on Claim 2 to argue for “production” beyond “hydrocarbon” is unpersuasive. The limitation in Claim 2 makes clear that Claim 1 applies only to hydrocarbon production. 37 CFR 1.75(c) (“One or more claims may be presented in dependent form, referring back to *and further limiting another claim . . .*” (emphasis added)). The specification is consistent in stating that the downhole apparatus and method described in the ‘435 Patent are “for use in the

hydrocarbon production industry.” Column 1, lines 8–10. Both the claims and the specification support limiting the claim term to the production of hydrocarbons. *Vitronics*, 90 F.3d at 1582; *Phillips*, 415 F.3d at 1315.

The construction for “production tubular” the defendants propose would include pre-production tubular, such as drill strings. This construction is too broad and was properly rejected during a prior motions hearing. (Docket Entry No. 109-2 at 6 (in response to the court’s statement that “[p]roduction tubular is not the same as drilling tubular,” counsel for the defendants said: “It—it is not exactly the same, Your Honor. That’s—that’s true.”)). At the *Markman* hearing, Multilift argued that “production” refers to the post-drilling phase in which hydrocarbons are extracted from the earth and brought to the surface. (Docket Entry No. 123 at 135). The defendants do not object to that construction as wrong, merely as unnecessary. It is accurate, and useful to the jury, to construe “production tubular” to mean tubular used during the post-drilling phase of producing hydrocarbons.

**C. Construing “a [first/second] flow path between the upper opening and the lower opening in the body”**

**i. The Parties’ Contentions**

The parties’ primary dispute is over the meaning of the word “between” in this claim term. Multilift construes the claim term to mean: “a [first/second] flow path between the upper opening and the lower opening in the body, where the [first/second] flow path is not required to extend from the upper opening to the lower opening but can instead reside at any point separating the upper and lower openings.” The defendants construe the term to mean: “a first flow path from the lower opening to the upper opening in the body.” A critical difference is that the defendants construe “between” to mean the space separating two points, but connecting them at each end; Multilift

construes “between” to mean any part of the space separating two points. Multilift asserts that “between” in this term “encompasses the situation where something resides in the space separating two points, regardless of whether it does . . . or does not . . . connect them together.” It argues that the defendants’ construction replaces “between” with the word “from,” requiring the flow path to connect the upper opening to the lower opening.

Multilift points to the specification to argue that the defendants’ proposed construction would contradict the correct use of “between” and exclude the preferred embodiments. *See Vitronics*, 90 F.3d at 1584 (an interpretation that causes a preferred embodiment to fall outside the scope of the patent claim is “rarely, if ever, correct”). The specification states that “there is no direct flow path from the lower opening 24 to the second flow region.” Column 6, lines 37–38. Multilift also refers to Figure 1B to argue that the second flow path does not run from the top of the apparatus to the bottom. Instead, the second flow path stops before reaching the lower opening.

The defendants argue that “between” can have different definitions depending on context. Here, the defendants assert that the claim describes a “path” between two points, defining “between” as “connecting” points A and B. The defendants cite the testimony of Dr. Wooley, and of Multilift’s expert, Mr. John Bearden. The defendants also cite the specification language stating that the flow path flows “through the apparatus,” Column 7, lines 6–7, and Figure 1A, similar to Figure 1B, to show that there is a flow path that connects the upper and lower openings, allowing fluid to flow from one to the other.

## **ii. Analysis**

The court agrees that the word “between” can have different meanings depending on the context in which it is used. As used in this ‘435 Patent claim, “between” means an area or space

within the distance separating the upper and lower opening. The specification for the second flow path is informative. It states that “there is no direct flow path from the lower opening 24 to the second flow region.” Column 6, lines 37–38. The apparatus is designed to divert solids to the second flow region in the second flow path and prevent the solids from exiting through the lower opening and damaging the pump. The second flow path need not be connected to the lower opening because fluid can still flow through the apparatus via the first flow path.

The expert testimony the defendants cite is consistent with this construction. Both experts referred to only the first flow path when they testified that “between” meant “from the upper opening . . . to the lower opening,” (Docket Entry No. 113-2 at 6), and “from Point A to Point B,” (Docket Entry No. 113-1 at 5). The cited testimony does not refer to the second flow path. Even if the first flow path connects the upper and lower openings of the apparatus, (Docket Entry No. 123 at 48–49), the Patent makes clear that the second flow path does not require this connection.

This disputed term is construed to mean “a [first/second] flow path between the upper opening and the lower opening in the body, where the [first/second] flow path is not required to extend from the upper opening to the lower opening but can instead reside at any point separating the upper and lower openings.”

**D. Construing “flow diverter arranged to direct downward flow through the body towards the second flow path and away from the first flow path”**

**i. The Parties’ Contentions**

The parties dispute whether “flow diverter” is a means-plus-function element. Multilift argues that it is not and that the term should be construed as one of ordinary skill in the art would understand it: “a class of well-known and commonly used devices in the mechanical arts that re-direct flow.” The defendants argue that this is a means-plus-function element, with the function of

“direct[ing] downward flow through the body towards the second flow path and away from the first flow path,” and the structure of “[t]he following or equivalents thereof: (1) Mushroom valve, (2) Ball valve, (3) Flapper valve, (4) Cone valve, (5) Petal valve.” If “flow diverter” is a means-plus-function element, then it is limited to the corresponding mechanical valves and equivalents described in the specifications.

Multilift argues that § 112(6) presumptively does not apply because “means” does not appear in the disputed term. Multilift argues that “flow diverter” means a sufficiently definite structure, citing Dr. Wooley’s testimony that the term has “been around the oil industry for a long time”; is used to connote “valves and things like that” in the context of downhole pumps; and is “not an uncommon term.” (Docket Entry No. 109-3 at 3–4). At a prior motions hearing, Dr. Wooley testified that “there are a number of different types of flow diverters that are common in the oil and gas industry.” (Docket Entry No. 109-2 at 3). Multilift also cites its own technical expert’s testimony that “flow diverter” is “a commonly used term in the industry.” (Docket Entry No. 109-4 at 3).

The terms “flow diverter” and “diverter” also appear in technical dictionaries. *See Personalized Media Commc’ns, LLC v. Int’l Trade Comm’n*, 161 F.3d 696, 705 (Fed. Cir. 1998). According to *A Dictionary for the Oil and Gas Industry* (2011), a “diverter” is:

in offshore drilling, an assembly of devices used to direct fluids flowing from a well away from the drilling rig. When a kick is encountered at shallow depths, the well often cannot be shut in safely because shutting it in on a shallow formation may create pressures high enough to fracture (break down) the formation. Therefore, a diverter is used. When activated, it allows well fluids to flow through a side outlet to a line (pipe) that carries the well fluids a safe distance away from the rig. A diverter contains a packing element, flow-line seals, and lock-down mechanism and is run and retrieved with a special handling tool made up on riser pipe.

(Docket Entry No. 109-8 at 6). The *IADC Lexicon* defines “flow diverter” as “[i]nstalled at the top



of the BOP above the flow cross. Function is to divert returned fluids away from the drill floor. . .” (Docket Entry No. 109-9 at 1).

Multilift argues that the ‘435 Patent claims “describe[] how the flow diverter operates within the claimed invention to achieve its objectives and its relationship to other structural limitations,” and that the specification “evidences the physical, structural nature of a ‘flow diverter,’ which is described as residing above the first flow path and redirecting flow from the first path to the second flow path.” *See, e.g.*, Column 10, lines 22–26. Multilift argues that this case is analogous to *Personalized Media*, in which the Federal Circuit held that “digital detector” was not a means-plus-function element because “detector” was not a generic structural term, had a well-known meaning to those of skill, and was made more definite by the use of the word “flow,” which narrowed the scope of structures covered by the claim.

The defendants respond that Multilift applied the wrong presumption standard, and that under the correct standard the claim term is subject to § 112(6). According to the defendants, “the language of the claim does not tell one of skill in the art anything at all about how the function should be performed in order to practice—or avoid practicing—the claimed invention.” (Docket Entry No. 113 at 19). The defendants cite Dr. Wooley’s testimony that Claim 1 recites no structure for performing the function of diverting downward flow.

The defendants analogize “flow diverter” to “lever movement element,” the disputed term addressed in *Mas-Hamilton Group v. LaGard, Inc.*, 156 F.3d 1206 (Fed. Cir. 1998). In *Mas-Hamilton*, the Federal Circuit held that the term was subject to § 112(6t) because it “could be any device that can cause the lever to move.” *Id.* at 1214. The Federal Circuit noted that a claim “cannot be construed so broadly to cover every conceivable way or means to perform the function

. . . .” *Id.* Mr. Bearden, Multilift’s expert, testified that a “flow diverter” “could be one of many mechanical devices, different shapes, depending on this—where it’s used and—in the assembly or the device that diverts flow” and that it “changes the direction of the flow.” (Docket Entry No. 113-1 at 6); *see also* (Docket Entry No. 113-4 at 4) (“[I]f its operation is set up to divert flow, it would be a diverter.”). The defendants argue that Multilift’s position that “flow diverter” refers to definite structures “proves far too much.” Dr. Wooley, the defendants’ expert, testified that “flow diverter” refers broadly to many different structures or intangible forces. (Docket Entry No. 56-2 at ¶7). The defendants conclude that the term is not understood as referring to sufficiently definite structure. *See Robert Bosch, LLC v. Snap-On Inc.*, 769 F.3d 1094, 1099 (Fed. Cir. 2014) (“The question is whether the claim language names particular structures or, instead, refers only to a general category of whatever may perform specified functions.”).

The defendants argue that Multilift’s reliance on *Personalized Media* is misplaced for two reasons. First, *Personalized Media* was decided under the wrong lack-of-“means” presumption standard; and second, the term at issue in *Personalized Media*, “detractor,” was found sufficiently definite because it “had a well-known meaning to those of skill in the electrical arts connotative of structure, including a rectifier or demodulator.” 161 F.3d at 704–05. In contrast, the defendants argue, Multilift uses “flow diverter” to refer to an almost limitless number of distinct classes of structures.

Multilift replies that the defendants’ analysis incorrectly equates the term “flow diverter” with “means for” or “device for” diverting flow. They again cite Dr. Wooley’s testimony that “flow diverter” is a common term that, in the context of downhole pumps, means “valves and things like that.” (Docket Entry No. 109-3 at 3). Multilift argues that “flow diverter” does not refer to an

“almost endless variety of different structures,” as the defendants argue. Multilift cites the testimony of Mr. Bearden and Dr. Wooley that the ‘435 Patent makes it clear that “flow diverter” connotes the physical class of diverters, made up of valves and similar mechanical device structures. Multilift counters the defendants’ representation of Mr. Bearden’s testimony, asserting that Mr. Bearden testified that “flow diverter” referred to a definable class of mechanical devices, as opposed to “any device that diverts flow.”

Multilift contends that the defendants misapply the legal standard for § 112(6) by focusing on the word “particular” to misrepresent that the law requires claims to name specific, detailed structures. Instead, “[t]o determine whether a claim recites sufficient structure, it is sufficient if the claim term is used in common parlance or by persons of skill in the pertinent art to designate structure, even if the term covers a broad class of structures and even if the term identifies the structures by their function.” *Skky, Inc. v. MindGeek, s.a.r.l.*, 859 F.3d 1014, 1019 (Fed. Cir. 2017) (quotations omitted). Lastly, Multilift replies that *Personalized Media* did not apply the wrong presumption standard, and that “flow diverter,” like “detector,” is a well-known term that refers to particular types of structures in the context it is used—here, in the context of pumps used in hydrocarbon production.

## **ii. Analysis**

Pre-AIA 35 U.S.C. § 112(6) states: “An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.” Section § 112(6) is presumptively inapplicable unless a term contains the word “means.” Though the defendants

correctly note that the Federal Circuit no longer characterizes the lack-of- means presumption as “strong,” it has not overruled the presumption. *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1349 (Fed. Cir. 2015). The presumption still applies, but “without requiring any heightened evidentiary showing” by a challenger. *Id.* “The standard is whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure.” *Id.* (citing *Greenberg v. Ethicon Endo-Surgery, Inc.*, 91 F.3d 1580, 1583 (Fed. Cir. 1996)). The presumption can be overcome if “the challenger demonstrates that the claim term fails to recite sufficiently definite structure or else recites function without reciting sufficient structure for performing that function.” *Id.* (quotations omitted).

The defendants’ argument is that it is impossible to know what structure the claims disclose because there are so many different ways in which flow can be diverted. In the defendants’ view, anything could divert flow: a penny, a piece of angle iron, whatever sends flow off of its course. As a result, according to the defendants, “flow diverter” should be limited to the only method disclosed in the specification, which is by a valve that opens and closes to permit movement. (Docket Entry No. 123 at 87–88).

The intrinsic evidence supports Multilift’s construction. As Claim 1 makes clear, the flow diverter must “direct downward flow through the body towards the second flow path and away from the first flow path.” Column 11, lines 1–3. A penny or small piece of angle iron would barely affect the flow, not even close to the extent necessary to direct it away from the first flow path.

The specification further illuminates the structure required by the term. As the defendants note, the specification does not refer to non-mechanical diverters, such as centrifugal force, electromagnetic force, or chemical agents. (Docket Entry No. 123 at 79). The specification does

disclose a valve as a flow diverter, but does not limit a diverter to a valve. *See, e.g.*, Column 3, lines 6–18 (multiple references to “valve”); Column 3, line 6 (“Preferably, the flow diverter comprises a valve.”). These specification provisions support Multilift’s argument that the diverter is a mechanical diverter that includes valves and similar mechanical devices. Unlike in *Mas-Hamilton*, in which the claimed term was described only in terms of its function, the ‘435 Patent discloses a class of mechanical diverters as the class of structure.

The expert testimony confirms this construction. Experts on both sides noted common use and understanding of the term in the industry. (Docket Entry No. 109-3 at 3–4 (“diverter” has “been around the oil industry for a long time” and is “not an uncommon term”)); (Docket Entry No. 109-4 at 3 (“diverter” is a “commonly used term in the industry”)). Dr. Wooley testified that the term is used to indicate “valves *and things like that*,” (Docket Entry No. 109-3 at 3 (emphasis added)), supporting the position that the Patent discloses a class of mechanical diverters. The intrinsic and extrinsic evidence limit the class of diverters to mechanical diverters that a person of ordinary skill in the art would understand are built and operate to divert flow away from the first flow path and towards the second flow path.

The remaining question is whether a person of ordinary skill in the art would read the term, with those limitations, as having a sufficiently definite meaning as the name for structure. *Williamson*, 792 F.3d at 1349. A claim recites sufficient structure “if the claim term is used in common parlance or by persons of skill in the pertinent art to designate structure, even if the term covers a broad class of structures and even if the term identifies the structures by their function.” *Skky*, 859 F.3d at 1019. “Flow diverter” covers a broad class of mechanical structures that perform the function of diverting flow, but it does not disclose “every conceivable way or means to perform

the function.” *Mas-Hamilton*, 156 F.3d at 1214.

The defendants have not adequately demonstrated “that the claim term fails to recite sufficiently definite structure or else recites function without reciting sufficient structure for performing that function.” *Williamson*, 792 F.3d at 1349 (quotations omitted). “Flow diverter,” construed as “a mechanical diverter that one of ordinary skill in the art would understand to refer to a class of well-known and commonly used devices that divert flow,” is not subject to § 112(6). It is not a means-plus-function term.

**E. Construing “a device in the second flow path for filtering or collecting solid particles from the second flow path”**

**i. The Parties’ Contentions**

The parties initially disputed whether this term is a means-plus-function term, but the defendants conceded in their response brief that it is not. The parties agree that a jury would likely understand the meaning of “filter,” and that the term “device . . . for filtering” needs no construction. The remaining dispute is whether the term encompasses a “container.” Multilift construed the term to mean a device that can either filter or collect. The defendants argued that the term is limited to a filter.

**ii. Analysis**

At oral argument, the parties agreed that the device is one that “filters or collects.” (Docket Entry No. 123 at 100–101). The court agrees as well. Both parties also referred to the device as a “filter device.” *Id.* at 92–93, 97–99. The specification discusses a “filter device . . . for collecting.” Column 2, lines 17–18 (“a filter device in the second flow path for collecting solid particles in the second flow path”); Column 2, lines 26–29 (“The fluid may flow downward through the apparatus, in which case the flow diverter directs the fluid flow through the second fluid path, and through the

filter device to the lower opening.”); Column 2, lines 30–33 (“solids entrained in the fluid column may flow downward through a stationary fluid to the second flow path and be collected at the filter device of the apparatus”); Column 10, lines 26–29 (“A filter device in the second flow path filters or collects solid particles in the second flow path from passing out of the lower opening of the apparatus.”).

The term is construed to mean “a filter device that filters or collects solid particles in the second flow path.”

**F. Construing “directing downward flow of fluid and/or entrained solids to a second flow path in the body”**

**i. The Parties’ Contentions**

Multilift argues that this term needs no construction, offering only criticism of the defendants’ proposed construction. The defendants interpret this term to mean “closing a valve to cause fluid and entrained solids flowing in a downward direction to flow away from a first flow path and into a second flow path.”

Multilift first points to the absence of a specification limiting “directing downward flow” to requiring the “closing [of] a valve.” It asserts that the defendants’ proposed construction “improperly attempts to exclude sand flowing through a stationary column of fluid from the scope of the claims . . . .” (Docket Entry No. 109 at 20). This is significant for the same reasons discussed in the “flow” analysis. *See supra* IV.A. The defendants’ proposed construction would change “fluid *and/or* entrained solids” to “fluid *and* entrained solids.” Multilift also challenges the defendants’ construction because it requires the flow to be directed away from a “first flow path,” even though the disputed claim does not refer to a first flow path, and because including a “first flow path” creates ambiguity.

The defendants acknowledge that a large part of the dispute over this construction overlaps with the dispute over construing “flow.” Their response largely rehashes their earlier arguments and need not be revisited. The defendants also argue that “leaving this claim element completely open-ended with no reference to the only embodiment disclosed in the specification would likely render this claim invalid under § 112 for lack of written description or enablement,” and that its construction would preserve the validity of the Patent. *See N. Am. Vaccine, Inc. v. Am. Cyanamid Co.*, 7 F.3d 1571, 1577 (Fed. Cir. 1993).

## **ii. Analysis**

Because “flow” has already been construed to refer to the downward movement of entrained solids by gravity as well as with a moving column of entraining fluids, the core of this dispute is whether “directing downward flow” must be caused by the closing of a “valve.” The defendants do not argue that the term is subject to the means-plus-function description, but they do argue that the term is too open-ended as a method claim. (Docket Entry No. 123 at 106).

The method of “directing downward flow” in Claim 18 requires the same “flow diverter” structure provided in Claim 1. *See supra* IV.D. Claim 18 does not mention the word “valve.” “Valve” appears in the specification, which states: “*Preferably*, the flow diverter comprises a valve.” Column 3, line 6 (emphasis added). “When the specification describes a single embodiment to enable the invention, this court will not limit broader claim language to that single application unless the patentee has demonstrated a clear intention to limit the claim scope using words or expressions of manifest exclusion or restriction.” *Abbott Labs. v. Sandoz, Inc.*, 566 F.3d 1282, 1288 (Fed. Cir. 2009) (quotations omitted). The ‘435 Patent does not show that the patentee clearly intended to limit the claim scope to the use of a “valve.” For the same reasons that “flow diverter” is not limited



to a valve, “directing downward flow” applies to more methods than a valve. “Directing downward flow” is construed to mean “a flow diverter directing downward flow of fluid and/or entrained solids to a second flow path in the body.”

The defendants’ indefiniteness argument also fails at this stage. “While [the D.C. Circuit has] acknowledged the maxim that claims should be construed to preserve their validity, [it has] not applied that principle broadly, and [it has] certainly not endorsed a regime in which validity analysis is a regular component of claim construction.” *Phillips*, 415 F.3d at 1327. Validity should be addressed only when “the court concludes, after applying all the available tools of claim construction, that the claim is still ambiguous.” *Id.* (quotations omitted). The disputed term is not ambiguous, making it premature to address indefiniteness.

#### **G. Construing “filtering or collecting solid particles in the second flow path”**

##### **i. The Parties’ Contentions**

Multilift argues that this term should be construed in accordance with its plain and ordinary meaning “as taught in the specification, which provides that solid particles, such as sand, are filtered and collected in the annulus.” The defendants argue that the term should be construed to mean “[u]sing a filter to prevent solid particles from passing through the second flow path and out the lower opening of the body.”

Multilift argues that the defendants’ construction imposes unwarranted limitations on the claim and injects ambiguity. Multilift asserts that adding “filter device” is improper because the disputed claim is a method claim, not a means-plus-function limitation. Multilift also contends that the defendants’ construction reads “collecting” out of the claim, which Claim 18’s language does not warrant. Similarly, the defendants’ requirement that solid particles be prevented from flowing

“out the lower opening in the body” adds a requirement not present in Claim 18. Lastly, Multilift argues that “passing *through* the second flow path” should be rejected because the filter does not prevent solid particles from passing “through” the second flow path in the disclosed embodiments. The filter prevents solids from entering the first flow path, not from flowing through—and out of—the second flow path.

The defendants respond by reasserting their prior argument that “collecting” cannot be done without a filter. *See supra* IV.E. The defendants argue that solid particles must flow “through” the second flow path and out the lower opening for two reasons. First, the specification states: “A filter device in the second flow path filters or collects solid particles in the second flow path from passing out of the lower opening of the apparatus.” Column 10, lines 26–29. Second, the solid particles pass “into,” not “through,” the second flow path. Column 6, lines 67–Column 7, line 2. Third, Multilift’s treatment of the term would make the claim invalid under § 112 for lack of a written description or enablement

Multilift replies by arguing that the defendants’ point sidesteps Multilift’s “through” argument because neither specification provision the defendants cite state that solid particles are prevented from passing “through” the second flow path.

## **ii. Analysis**

As discussed in the analysis of a “device . . . for filtering or collecting solid particles,” a filter device is the device used for filtering or collecting. *See supra* IV.E. For that reason, the defendant’s addition of “using a filter” should be included in the construction of this term.

The rest of the defendants’ construction argument is unpersuasive. For the reasons discussed

in the analysis of “a [first/second] flow path between the upper opening and the lower opening in the body,” the second flow path does not have to connect the upper and lower openings. *See supra* IV.C. The specification stating that “[a] filter device in the second flow path filters or collects solid particles in the second flow path from passing out of the lower opening of the apparatus,” refers to a filter device that prevents solids accumulated in the second flow path from exiting the lower opening via the first flow path, not via the second flow path. Column 10, lines 26–29.

This term is construed as: “a filter device that filters or collects solid particles in the second flow path.” Addressing indefiniteness is not proper at this point because Claim 18 is not ambiguous. *Phillips*, 415 F.3d at 1327.

**H. Construing “wherein fluid flowing in the first flow path in an upward direction causes fluid flow in the second flow path which carries filtered or collected solid particles away from the device”**

**i. The Parties’ Contentions**

The parties do not dispute the meaning of this term, but they do dispute whether this element is a requirement of the claim or a non-limiting statement of intended use. Multilift argues that the element is required, while the defendants argue that the element is a non-limiting statement of intended use.

Multilift argues that the element “further limits the structure of claim 1 by requiring the first and second flow paths to be physically arranged to bring about a certain result . . . .” (Docket Entry No. 109 at 29). The result is the self-cleaning function of having the pressure from the upward movement of fluids and solids “clean” the solids that accumulated in the second flow path. Removing this element “would fundamentally change the claimed invention . . . .” *Id.*; Column 9, lines 31–35 (“In a subsequent production phase, . . . the downhole pump resumes to pump fluid

upwards through the apparatus 100 and open the valve 104. Fluid flow in the first flow region 28a also induced flow in the second flow region 28b to carry sands and solids upwards in the apparatus to rejoin the production flow.”). Multilift argues that because the self-cleaning function is fundamental to the invention, the element is limiting. *See Vizio, Inc. v. Int’l Trade Comm’n*, 605 F.3d 1330, 1341 (Fed. Cir. 2010).

Multilift alternatively argues that if the element is a statement of intended use, it is still limiting because it was “clearly and unmistakably relied on during examination to distinguish the prior art.” Multilift asserts that the examiner who reviewed the ‘435 Patent rejected Claim 1 over the prior art, but stated that it would be permitted if it incorporated the limitation of then dependent Claim 7 (the disputed element in question).

The defendants cite Dr. Wooley’s testimony to argue that Multilift’s position is flawed. Dr. Wooley testified that Claim 1 does not require that “all collected solid particles be carried away” or that “solid particles be carried out of the entire second flow path.” (Docket Entry No. 113-7 at 10–11). According to the defendants, as long as there is fluid communication somewhere between the two flow paths that could carry away some of the solids (such as ports at the top of the inner tube connecting the first flow path to the second), that would be sufficient. (Docket Entry No. 113 at 29).

The defendants also argue that the amendments to Claim 1 made in response to the first Office Action do not make the disputed element a separate structural limitation. The amendments added two limitations: (1) “wherein the first flow path and the second flow path are in fluid communication with one another” and (2) “wherein fluid flowing in the first flow path in an upward directions causes fluid flow in the second flow path which carries filtered or collected solid particles away from the device.” Column 11, lines 6–11. According to the defendants, the first element

makes the second element superfluous because the second element requires fluid communication.

Multilift replies that the disputed element must limit Claim 1 because solid particles that have been filtered or collected may not otherwise be carried away. For example, if fluid communication occurred only at the top of the first and second flow paths, and no solids had accumulated to reach that point in the second flow path, no solids would be carried away by fluid flow in the second flow path caused by upward fluid flow in the first flow path. Multilift emphasizes that the examiner required the patentee to include the amendments before allowing the claims. Multilift counters the defendants' argument that including the amended element makes the disputed element superfluous by emphasizing that because it had to be included to overcome the prior art, it is not superfluous.

## **ii. Analysis**

If Multilift can show that “carr[ying] filtered or collected solid particles away from the device” is possible only with a particular fluid communication structure—the placement of slits in the inner tube that connect the two flow paths—then the element is required because it is limiting. If not, then the defendants' argument is correct, and the element is a non-limiting statement of intended use.

Multilift's argument is more persuasive. The element has to limit Claim 1 in order for fluid flow in the second flow path caused by fluid flow in the first flow path to carry solid particles away from the device. Solids are carried away when the upward fluid flow from the first fluid path travels through the slits, creating fluid communication and causing fluid flow in the second fluid path. This happens if the fluid communication slits are positioned strategically. One slit at the bottom of the first flow path will not help once solids have accumulated in the second flow path. The weight and

pressure of the solids will outweigh the force of the fluid flow. That is what happens without the apparatus: Solids accumulate on top of the pump, and the pump cannot generate enough fluid flow force to clear them, causing pump failure. The converse is also true. One slit too high on the flow path will be ineffective if solids have not accumulated enough in the second flow path to reach that point. Fluid communication may occur, but no solids would be carried away by the fluid flow in the second flow path.

To carry solid particles away from the device, as described in the disputed element, the fluid communication slits must be placed throughout the first flow path. The disputed element limits Claim 1 in this way. It is a required element and not, as the defendants argue, a non-limiting statement of intended use.

## **V. Conclusion**

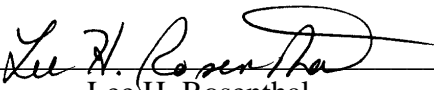
The term “wherein fluid flowing in the first flow path in an upward directions causes fluid flow in the second flow path which carries filtered or collected solid particles away from the device” is a required element.

The constructions of the disputed terms are:

1. **flow**: The movement of fluids, and entrained solids, and of entrained solids continuing to move after the fluid has become stationary.
2. **production tubular**: Tubular used during the post-drilling phase of producing hydrocarbons.
3. **a [first/second] flow path between the upper opening and the lower opening in the body**: A [first/second] flow path between the upper opening and the lower opening in the body, where the [first/second] flow path is not required to extend from the upper opening to the lower opening but can instead reside at any point separating the upper and lower openings.

4. **flow diverter arranged to direct downward flow through the body towards the second flow path and away from the first flow path:** A mechanical diverter that one of ordinary skill in the art would understand to refer to a class of well-known and commonly used devices that divert flow.
5. **a device in the second flow path for filtering or collecting solid particles from the second flow path:** A filter device that either filters or collects.
6. **directing downward flow of fluid and/or entrained solids to a second flow path in the body:**  
A flow diverter directing downward flow of fluid and/or entrained solids to a second flow path in the body.
7. **filtering or collecting solid particles in the second flow path:** A filter device that filters or collects solid particles in the second flow path.

SIGNED on February 16, 2018, at Houston, Texas.

  
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Lee H. Rosenthal  
Chief United States District Judge